Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (CURRENTLY AMENDED): A capacitor-based biodetector ~~method of~~ for detecting one or more substances of interest comprising:

~~exposing said one or more substances of interest to a detecting device, said device comprising~~

a plurality of nanogaps, one or more nanogaps having one or more probe molecules attached therein and able to attach to said one or more substances of interest;

means for exposing said capacitor-based biodetector ~~detecting device~~ to a material suspected to contain ~~said~~ one or more substances of interest; and

means for measuring ~~a~~ one or more ~~capacitance or~~ dielectric properties at one or more ~~different~~ frequency ranges of said ~~one or more~~ nanogaps ~~devices~~; ~~and~~

thereby statically and/or dynamical detecting presence of said one or more substances of interest.

2. (CURRENTLY AMENDED): A capacitor-based biodetector ~~method of~~ for detecting conformations of one or more substances of interest comprising:

~~exposing said one or more substances of interest to a detecting device, said device comprising~~ a plurality of nanogaps; and

means for measuring ~~a capacitance or~~ dielectric properties at different frequency ranges of said ~~one or more~~ nanogaps ~~devices~~; ~~and~~

thereby statically and/or dynamical detecting conformations or other reaction changes of said one or more substances of interest.

3. (WITHDRAWN): A method of fabricating a nanogap device comprising:

placing a first selectively removable layer on a substrate surface, said substrate surface defining a horizontal orientation;

selectively removing a plurality of channels in said first layer, said channels characterized by a channel width and channel walls substantially vertical to said substrate surface;

placing a second selectively removable layer over said channels such that said second layer coats vertical sides of said channels without filling said channels, said vertical coating characterized by a vertical coating width;

placing a third layer over said layers such that said third layer fills said channels;

removing a vertical portion to expose a surface comprising regions of said first layer and regions of said third layer separated by regions of said second layer; and

removing said second layer to create a device having regions of said first layer and said third layer separated by gaps having widths largely determined by said vertical coating width.

4. (WITHDRAWN): The method of claim 3 further comprising:

placing a fourth selectively removable layer on said second layer prior to said selectively removing a plurality of channels.

5. (WITHDRAWN): The method of claim 3 further comprising:

selective removing a horizontal portion of said second layer prior to said placing said third layer.

6. (CURRENTLY AMENDED): The biodetector ~~method~~ of claim 1~~3~~ further wherein:

said nanogaps are situated on a substrate; and

said substrate comprises an upper layer of SiN and a lower layer of Si.

7. (CURRENTLY AMENDED): The biodetector ~~method~~ of claim 6~~3~~ further wherein:

said nanogaps are defined by containment walls ~~first and/or said third layer~~ comprising~~es~~ Poly-Si.

8. (CURRENTLY AMENDED): The biodetector ~~method~~ of claim 6~~3~~ further wherein:

said nanogaps are formed by removing ~~second and/or said fourth layer comprises~~ an oxide.

9. (CURRENTLY AMENDED): The biodetector ~~method~~ of claim 6~~3~~ further wherein:

said nanogaps are situated on a substrate; and

said substrate comprises any appropriate material for fabricating nanoscale devices.

10. (WITHDRAWN): The method of claim 3 further wherein:

said first and/or said third layer comprises any material that can be deposited on and selectively removed from said substrate.

11. (WITHDRAWN): The method of claim 3 further wherein:

said second layer comprises any material that can be deposited so as to provide a layer of appropriate thickness in said channels.

12. (WITHDRAWN): The method of claim 3 further wherein:

said channel width is a width near a smallest channel width achievable using selective mask etching.

13. (CURRENTLY AMENDED): The biodetector ~~method~~ of claim 1~~3~~ further wherein:

said nanogaps have a ~~vertical coating width and said~~ gap width ~~are of similar sizes of~~ of approximately 50 nm.

14. (CURRENTLY AMENDED): The biodetector ~~method~~ of claim 1~~3~~ further wherein:

said nanogaps have a ~~vertical coating width and said~~ gap width ~~are of similar sizes~~ between approximately 5 nm and 100 nm.

15. (CURRENTLY AMENDED): The ~~method~~ biodector of claim 1~~3~~ further comprising:

~~attaching~~ self-assembled monolayer (SAM) probe molecules in said gap.~~;~~

~~exposing said gaps to material suspected to contain ligands of said probe molecules; and~~

~~detecting bindings of said ligands to said probe molecules by measuring a capacitance across said gap.~~

16. (CURRENTLY AMENDED): The ~~method~~ biodector of claim 15 further wherein:

said self-assembled monolayer (SAM) probe molecules comprise single-strand oligonucleotides;

said one or more substances of interest comprising ligands comprising ~~e~~ one or more suspected complementary single-strand oligonucleotides;

said detecting comprises detecting bindings of said ligands to said probe molecules by measuring a capacitance across said gap; and

said bindings comprise hybridization of said probe molecule and said ligands.

17. (CURRENTLY AMENDED): The biodector ~~method~~ of claim ~~15~~ 16 further wherein:

~~said self-assembled monolayer (SAM) probe molecules comprise single strand oligonucleotides;~~

~~said ligands comprise one or more suspected complementary single strand oligonucleotides;~~

~~said bindings comprise hybridization of said probe molecule and said ligands;~~

said probe molecules are in a solid state during detecting;

capacitance is measured at a range of frequency within a range of about 75 kHZ to about 5 MHZ using ~~;~~ two parallel electrodes ~~used~~ with capacitance measured between them; and

said probe is a relatively short nucleotide probe of 20mer to 40mer.

18. (ORIGINAL): A capacitor-based biodetector comprising:

a plurality of parallel electrodes arranged on a substrate with gaps between them;

a plurality of receptor probe molecules arranged between said electrodes in said gaps;

circuitry for measuring capacitance between pairs of said electrodes.

19. (ORIGINAL): The device according to claim 18 further wherein:

said gaps are parallel to said substrate.

20. (ORIGINAL): The device according to claim 18 further wherein:

said gaps are perpendicular to said substrate.

21. (ORIGINAL): The device according to claim 18 further wherein:

said gaps are between 5 to 100 nm.

22. (ORIGINAL): The device according to claim 18 further wherein:

said probe molecules comprise one or more selected from the group:

self-assembled monolayers (SAM) in said gaps;

single-strand oligonucleotides;

single-strand DNA; or

amino acid templates.

23. (ORIGINAL): The device according to claim 18 further wherein:

said probe molecules comprise biologic sequence of between 20 and 60 base pairs.

24. (ORIGINAL): The device according to claim 18 further wherein:

said circuitry is able to measure at a range of frequency within a range of about 25 kHZ to about 10 MHZ.

25. (ORIGINAL): The device according to claim 18 further comprising:

nanoplumbing features to move substances to appropriate positions of said device.

26. (CURRENTLY AMENDED): A nanogap hybrid device comprising:

a plurality of gap means systematically arranged in a~~n~~ solid state fabricated structure;

a plurality of receptor molecules arranged in said gaps; and

means for detecting capacitance across said gaps.

27. (CURRENTLY AMENDED): A nanogap hybrid device ~~detector~~ for detecting one or more substances of interest comprising:

a plurality of gap means systematically arranged in a solid state fabricated structure;

a plurality of receptor molecules arranged in said gaps; and

means for exposing said one or more substances of interest to an integrated solid state nanogap hybrid ~~detecting~~ device, said device having arranged therein one or more molecules able to attach to said one or more substances of interest;

means for measuring electronic characteristics of interest in small regions of said device; and

means for using measured electronic characteristics to signal the presence of said one or more substances of interest.

28. (CURRENTLY AMENDED): The device according to claim 26 further wherein:

said device is creating using ~~novel~~ nanotechnology batch-fabrication techniques;

said device comprises polysilicon chips riddled with nanogap junctions;

immobolized within each nanogap is at least one strand of reference single-strand DNA;

a voltage is applied across one or more of said nanogap junctions and a measurement is taken of capacitance;

wherein capacitance is determined by the dielectric (insulating) property of the material in the nanogap, which changes as a result of hybridization; and

wherein detecting is accomplished by adding a sample DNA and measuring a difference of capacitance after hybridization.

29. (CURRENTLY AMENDED): A capacitor-based nanogap ~~biodetector~~ device comprising:

a plurality of nanogap junctions arrays, each array comprising a plurality of nanogap junctions;

a nanofluidic network connecting to said plurality of arrays; and

a plurality of electrode connections for connecting electrical signals to said arrays.

30. (ORIGINAL): The device according to claim 29 further comprising:

a plurality of receptor probe molecules arranged in said nanogap junctions.

31. (ORIGINAL): The device according to claim 29 further comprising:

a covering over said plurality of arrays, said covering having at least one inlet and at least one outlet.

32. (WITHDRAWN): A method of fabricating a nanogap device comprising:

placing a first selectively removable electrode layer on a substrate surface, said substrate surface defining a horizontal orientation;

selectively removing a portion of said first selectively removable electrode material;

attaching a sacrificial molecular layer to a portion of said first electrode material;

placing a second selectively removable electrode layer on a substrate surface, said second electrode layer abutting said sacrificial molecular layer;

removing said sacrificial molecular layer to form a nanogap channel between said electrode layers.